3 Sheets—Sheet 1.

T. J. DAVIS.

BRICK-MACHINE.

No. 187,359. Patented Feb. 13, 1877.

Fig. I.

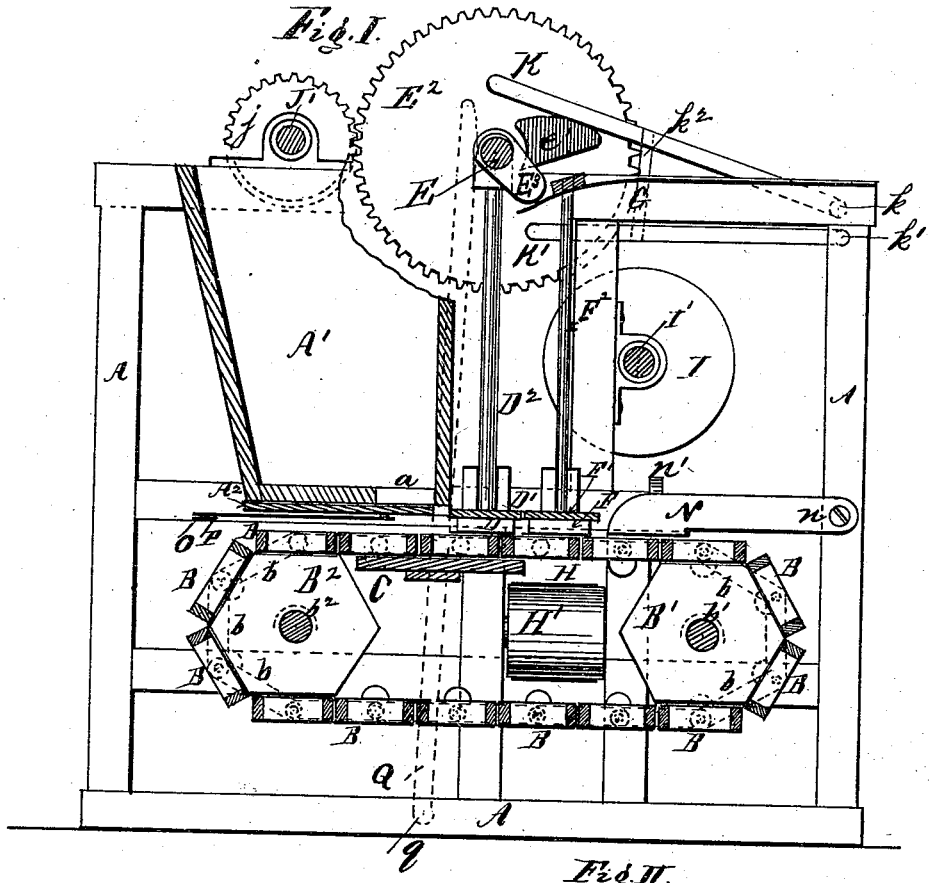
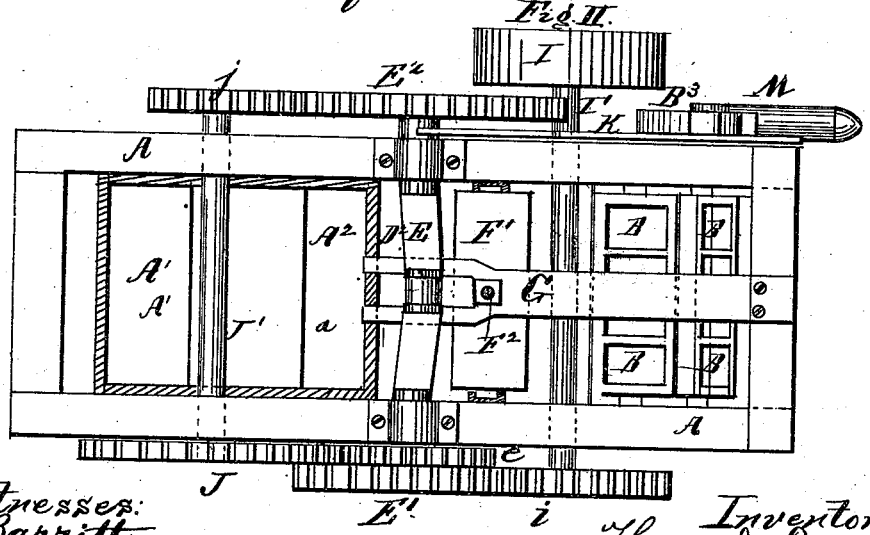


Fig. II.



Witnesses:
F. Barritt.
Ernest Rubsamen

Inventor:
Thomas J. Davis
Per: Henry Gerner
his Atty

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T. J. DAVIS.

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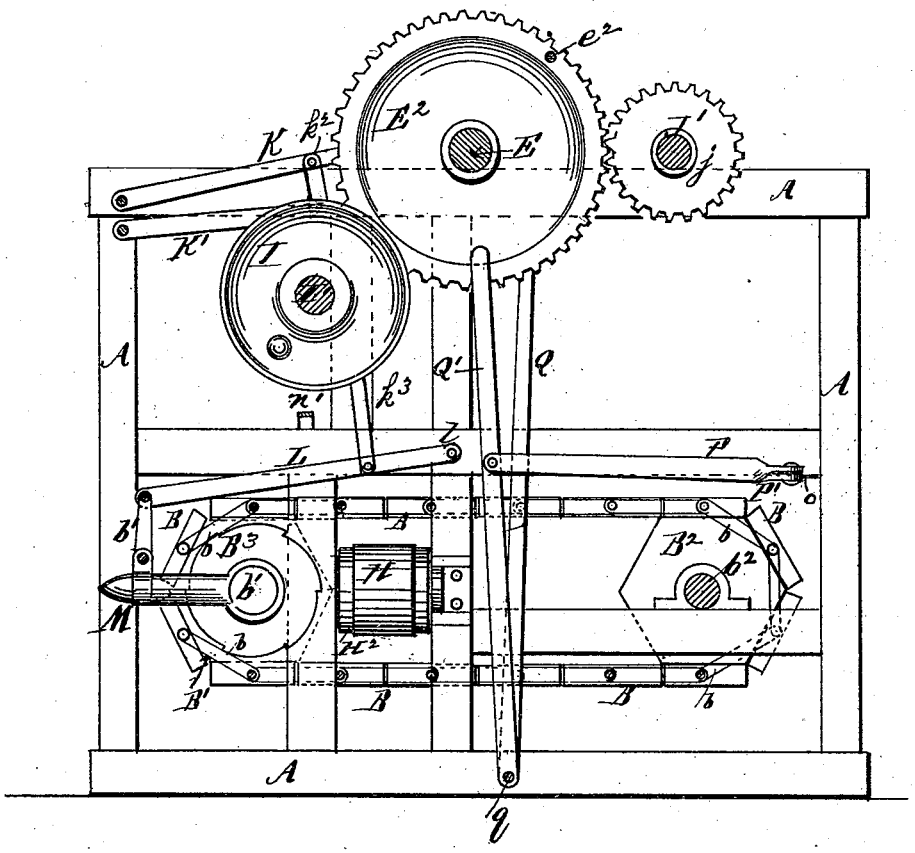
Fig III.



Witnesses:
F. Barritt
Richard Comer

Inventor:
Thomas J. Davis.
Per:
Henry Comer,
his Atty

3 Sheets—Sheet 3.

T. J. DAVIS.

BRICK-MACHINE.

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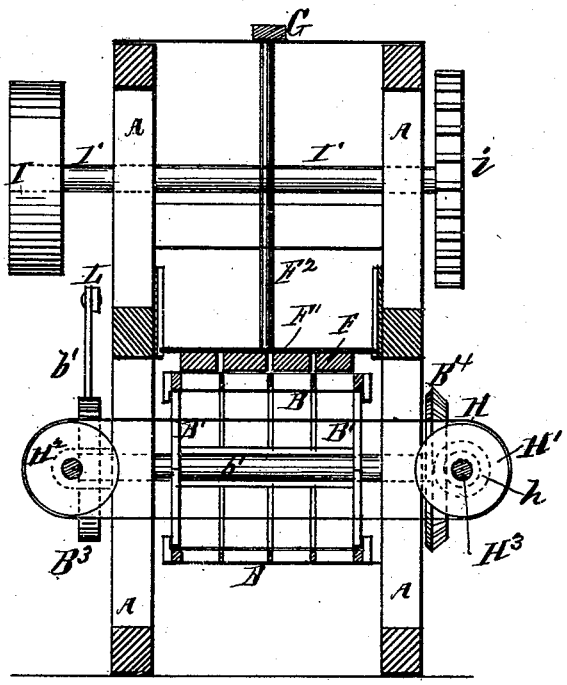
Fig. IV.



Witnesses:
F. Barrett
Richard Gerner

Inventor:
Thomas J. Davis.
Per
Henry Gerner,
his Atty

UNITED STATES PATENT OFFICE

THOMAS JEFFERSON DAVIS, OF FAIRHAVEN, NEW YORK.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **187,359**, dated February 13, 1877; application filed August 12, 1876.

To all whom it may concern:

Be it known that I, THOMAS JEFFERSON DAVIS, of Fairhaven, in the county of Cayuga, State of New York, have made a new and useful Improvement in Brick-Machines, of which the following is the specification:

This invention relates to a machine, having a series of brick-molds arranged upon an endless belt, which molds are successively carried under a hopper filled with tempered clay, from which they are filled, and then the molds are moved forward under two sets of plungers, the first of which presses the bricks to the hardness required, and the second set of plungers press the finished bricks out at the bottoms of the molds upon an apron or belt, which delivers the finished bricks at one side of the machine.

The invention will be readily understood by reference to the accompanying drawings, of which—

Figure I is a longitudinal sectional elevation of the machine, part of the frame-work being broken out to show the cam-work that operates parts of the machine. Fig. II is a general plan of the same. Fig. III is a side elevation of the discharge side of the machine. Fig. IV is a transverse sectional elevation, taken through the center of the belt or apron that discharges the finished bricks from the machine.

All the operative parts of this machine are built upon or attached to the frame A, at or near one end of which is placed the stock-hopper A^1, which is to be filled with tempered clay, that, as fast as required, passes out through an opening, *a*, at the bottom of the hopper and into a series of molds, B, which are successively drawn under the said opening *a*. A gate or slide, A^2, is arranged to slide under the opening *a*, and cut off the discharge of clay into the molds as each successive set of molds is filled. The gate or slide A^2 is arranged to act automatically, as will be hereinafter more fully explained The molds B are arranged in sets, and are connected together by the straps *b*, so as to form an endless belt or chain of molds. This belt or chain of molds passes over or around the outsides of two polygonal drums, B^1 B^2, which are supported by means of suitable axles b^1 and b^2 on some suitable part of the frame A. One of the ends of the axle b^1 carries a ratchet-wheel, B^3, by which motion is imparted to the train of molds.

A heavy metal bed-plate C is placed under the top part of the train of molds between the bearing-drums B^1 and B^2, which said bed-plate is fixed to the frame A, and forms a stop for the bottom of molds where the clay enters them, and also a platten against which the bricks are pressed by the plungers D. These plungers D are arranged to fit nicely into the molds B, one plunger to each mold, and the whole set of plungers is attached to the moving platten D^1, which is moved up and down by the rod D^2, the said rod being actuated by the crank or compression-shaft E, which has its bearings in the top part of the frame A. At each revolution of the shaft E the plungers D are pressed down and raised up once, and one set of bricks are thereby thoroughly pressed between these plungers D and the fixed platten C.

A second set of plungers F are placed just in front of the plungers D, and these are attached to the moving platten F^1, which is operated by the plunger-rod F^2. The top end of this plunger-rod is attached to the spring-bar G, one end of which is fixed to the frame A, and the other end of it is free, the action of the spring being to habitually raise the said rod F^2 and its connections up. The free end of the spring-bar G passes beyond the rod F^2 and extends under the shaft E, and at each revolution of the shaft the cams E^3 strike against the end of the spring-bar G, and press it and its connections down far enough for the plungers F to pass clear through the molds B, and thereby press their contents out at the bottom of said molds, and upon the transverse apron or belt H that carries the finished bricks, thus delivered upon it, out at one side of the machine, where the attendants can receive them and bear them off from the machine.

The apron or belt conveyer H may be simply a belt of leather passing around two drums or pulleys, H^1 H^2, which are placed on opposite sides of the machine. These drums or pulleys receive their motion in a manner hereinafter described.

The arrangement of the parts is such that the chain of molds B has an intermittent motion, and stops positively under the hopper-opening *a*, and under each of the plungers D and F, and the distances between the centers of *a* and D, and D and F, being equal the train of molds must be made to move forward after each stop just that distance.

This motion is made in the following manner:

The machine receives its motion from the driving-pulley I on the driving-shaft I′. A cog-wheel, *i*, on one end of this shaft gears into and communicates motion to the wheel E^1 of the shaft E. Another wheel, *e*, upon the shaft E gears into and commmunicates motion to the wheel J upon the counter-shaft J′, and a cog-wheel, *j*, upon the other end of this counter-shaft gears into a cog-wheel, E^2, upon the other end of the shaft E, which is thus driven by gearing upon both its ends, as will be required, owing to the crank that operates the rod D^2 being in its center. The wheel E^2 carries upon its inner face a cam, e^1, which, at each revolution of the machine, strikes against and operates the cam-rods K K′, which said rods are respectively pivoted to the frame A at *k* and k^1, and they are connected together by means of the link k^2, so that they move together either up or down. A link, k^3, connects the rod K′ with lever, L, which is pivoted to the frame A at *l* and has a vertical motion imparted to it by the said link k^2.

As is shown in Fig. III, the free end of the lever L is connected, by means of the link *b*′, with a pawl-rod, M, the pawl of which engages the serrations of the ratchet-wheel B^3. At each revolution of the shaft E, then the cam e^1 will actuate the rods K K′, and these, in turn, will move the link k^3, and that the lever L, which will impart the required motion to the ratchet-wheel B^3, and so the train of molds will be set in motion, as has been already described.

A pawl, N, pivoted to the frame A at *n*, is used to drop against the molds, and cause them to stop at the exact point for the reception of the plungers D and F. A lug, *n*′, on one side of the pawl-rod projects outward, so as to be engaged by the lever L, and as the said lever is raised up it will raise the pawl with it, and so free it from its hold against the mold, and allow the train of molds to move forward another step.

The gate or slide A^2 that closes the aperture at the bottom of the stock-hopper is moved forward and backward by means of the lever O, which is fulcrumed at *o* to the frame A, on the outside of which the said lever is connected, by means of two links, P P′, with two levers Q Q′, which said levers are fulcrumed at *q* to the frame A. The upper ends of these levers are free, and as the shaft E revolves, the cam e^1 strikes the top end of the lever Q, and causes it to close the slide A^2. A pin, e^2, upon the outside of the wheel E^2 strikes against the top end of the lever Q′, and causes it to open the slide A^2. The pulley H^1 that drives the belt-conveyer H is placed upon a longitudinal counter-shaft, H^3, which receives its motion from the bevel gear-wheel *h*, which is actuated by the bevel gear-wheel B^4 upon the shaft *b*′.

Having thus described my invention, I desire to claim—

1. The plungers F, with their rods F^2, and the spring-bar G, arranged and operated as and for the purpose set forth.

2. The automatic mechanism e^1, K, K′, k^2, k^3, L, M, and B^3, for operating the train of molds, as and for the purpose set forth.

3. The pawl N, arranged and operated as and for the purpose set forth.

4. The valve or gate A^2, with its operating mechanism O, P, P′, Q, Q′, e^1, and e^2, arranged as and for the purpose set forth.

This specification signed this 13th day of June, 1876.

THOMAS JEFFERSON DAVIS.

Witnesses:

RICHD. GERNER,

F. BARRITT.